

Sleep And Psychology: A Q&A with Prof Alice Gregory

(A transcript of the q&a session that followed Alice's talk on 'Sleep and Psychology' at Copleston Centre, Peckham.)

***A note that this discussion mentions body weight. Reference to this is written in lighter text, like this: *example text*, so if you don't want to read it, you can skip it.**

Q. I'm always told that 'good' sleep is key for all types of health but it will never be accessible to me due to the medical care I perform to maintain my physical safety throughout the day and night. Is there a kinder way people could talk about sleep's impact on health and longevity?

This is a really brilliant question. It's actually one very close to my own heart because of course I'm a sleep researcher and have been since 2000, and have always prioritised my sleep and slept very well. And then in 2019, one of my children got diagnosed with Type 1 Diabetes. I don't know if any of you know about this condition, but it is really 24/7. You have to be on it around the clock. Insulin makes blood glucose go lower, then it can go high, you're constantly keeping it between 4 and 10, and it's round the clock monitoring for this. So I went from prioritising my sleep to knowing that unfortunately some people don't have that privilege.

So yes, I absolutely understand the question. I've actually done a little bit of work on this topic, because I think the important thing is that sleep is prioritised by everyone, regardless of your situation. I've begun to challenge lots of what sleep researchers are saying, including myself over the years, and now say: let's think about sleep in relation to conditions, and I've used Type 1 Diabetes as a prototypical condition that relates to other conditions as well. So for example, we have this advice to get technology out of the bedroom - but how does that work when it's life saving technology? Which it is for T1D. We're told to exercise - how does that work when exercise can make your glucose level go low or high? We're told that sleep restriction increases our sleep quality - how does

that work when the sleep you get isn't more consolidated sleep, often called deep sleep, because you need to wake up when there's an alarm?

I think a community of sleep specialists are starting to focus on some of these other challenges that there are, with the aim that everyone, regardless of their situation, can sleep better . But also - it's not all bad news! I know I've talked about the problems around sleep, but actually, much of the literature I'm referring to is on sleep restriction, that is, short sleep. We know there is literature on people that get very short sleep and the associated negative outcomes, health outcomes, very solid things. However, I read this review recently: there was a meta-analysis on insomnia and mortality. And if you look at the conclusions, they're saying that they don't find any correlation between insomnia and mortality. When they look at the data, there's no link there.

So I think the message from a sleep researcher that we can all relate to is: give yourself ample opportunity to sleep, and do what you can to sleep well. Some people will have insomnia, some people will have other personal situations, but this isn't necessarily negative. There's stuff that we can all do to sleep well. Experts such as myself need to be better at understanding individual circumstances.

Lots of the literature relates to people who are saying 'I'm so busy at work, I'm only going to give myself four hours to sleep every night.' That's a problem. But if you're struggling to sleep at night, have insomnia, there's no evidence that there's particularly a problem there in terms of long term health outcomes.

Q. Have non-capitalist sleep patterns been studied for their merit, i.e. the four seasons, 24 hour period instead of our clock? Surely eight hours a night is a modern invention?

The answer is yes, and it's another great question. I'm not for the eight hour solution. I contacted this guy A. Roger Ekirch who's a historian at Virginia Tech University. He's

an incredible guy and he wrote this wonderful book called *At Day's Close: A History of Nighttime* (2006), and he studies biphasic sleep. He was studying nighttime before the industrial revolution, and one thing that just kept coming up in the literature was the idea that people had two sleeps. So they would go to bed at maybe 9pm or 10pm, wake up just after midnight, and return for a second sleep. They'd use that time to maybe make some bread, put it in the oven, reset the fire, anything they needed to do. This idea of two sleeps just came up again and again. So he's proposed that that might be our natural sleep state. Which I think is a really nice way to contextualise insomnia, right? When we wake up, to think: perhaps this isn't a problem, it's just a different way of sleeping. We know it's not linked to health problems; if it's not negatively impacting your life perhaps it's not an issue at all you need to worry about.

So Ekirch argued that this is perhaps our natural sleep state. Others disagree. Sleep has been studied in a variety of different cultures including isolated hunter-gatherer cultures and societies, and in those populations there was no robust evidence that people woke up for extended periods during the night, which led some scientists to argue that perhaps it's not our natural state to wake during the night. So there are different schools of thought there. They're fascinating topics that continue to be studied.

Q. I am fascinated by how melatonin is a taboo sleep aid in the UK, but is widely used across the rest of the world. Do you know why that might be?

Melatonin is a really interesting topic, it comes up all the time. For those of you who don't know, melatonin is sometimes described as the darkness hormone. It's released naturally when it gets dark, so when our melatonin starts flowing we go 'Ah! It's time to go to sleep.' But it's not actually the sleep hormone. For example, in nocturnal animals it can give a cue that it's time to be awake. So when melatonin is released in those animals, they will go 'Ah! It's time to get up!'. So it's not the sleep hormone, it's the darkness

hormone. And it is very useful in sleep, and we see it in these natural patterns throughout the day. Melatonin secretion is very low during the day, it gets much higher overnight, and then it decreases again before the morning.

The question referred to the man-made formula, which is similar to the naturally occurring melatonin. And the question is absolutely right - in certain countries you can just buy it over the counter, you can buy it as a sort of supplement from health food shops. In others, in England for example, that's not the case. In fact, it's available on some prescriptions, either as liquids, capsules or tablets, which are taken around thirty minutes to an hour before bed. So that's setting the scene of this question for those of you who don't know about melatonin. Yes?

Q. How are people's melatonin levels affected in countries with a really short daylight span?

That's a really good question. Do you know, I don't actually know the answer to that. I think there would be an impact on our melatonin, absolutely. In the same way, we know if we hold a tablet in front of our eyes, or TV or something like that before bed, there's blue light that's emitted, and it actually blocks melatonin, it stops your melatonin flowing. So in the same way that you can have bright light at night, the cycles of the sun at different times of the year can also impact our melatonin as well. That's one reason we're often told to use blackout blinds and eye masks if there's sun coming in, to help us know when it's time to sleep.

So, that's the impact of melatonin, but what's the issue with it? Sometimes it's considered fine, in other countries it's not. Sometimes it's used for a variety of neurological disorders, for example in the UK, but I have read a number of reports about this that highlight some controversy. I think most experts I've spoken to believe it is useful for *some* people under *some* conditions. It's often very popular with parents: I've heard parents say 'I'm going to have to remortgage my house to continue getting

melatonin because it's so key for my child'. But there are certain issues, such as when you purchase it over the counter, the concentrations can vary greatly. It can say something on the box, but when you look at it in studies it can be very significantly different. There are no long-term studies on children, so it should be described as something we don't know about the outcome over time. One 2015 study said that where melatonin is prescribed as off-label it hasn't been approved for that purpose, so that was another concern. The other one that was flagged by the author was that melatonin has been used to change reproduction in sheep. So do we need to think about this a little bit more before we give this widely to people?

But I think overall, the story is that we need more work to understand the optimal dose. And to know the best timing, for a variety of conditions. So I think that there are some unanswered questions, and that's why people hesitate to use this widely.

Can you tell us a bit about lucid dreaming?

So, lucid dreams are dreams that you have some control over. Certainly I have lucid dreams - not for a while, but I remember when I was younger I used to be able to fly, and just whoosh around, I loved it. I'd swoop and stuff, it's just the best. So yeah, they're dreams you can control. If you look at the brain activity during lucid dreaming, it's got some features of being awake and some features of dreaming, creating this kind of unusual in-between state.

People often ask how to lucid dream, how can they do it? What techniques are there? And there have been a number of different techniques proposed, but I should say that there is definitely mixed evidence on the effectiveness of these, so nobody can guarantee that any of these techniques will work. But some people do 'reality checks': this is the idea that you check around the clock whether you're awake or asleep. So right now you'd be like 'I'm awake, I'm awake, am I awake? It's quite dark and relaxing so maybe I'm dreaming, I'm not quite sure!' So it's this reality checking - somehow, if you do it

regularly, then when the nighttime comes and you're still reality checking, then if you realise you're asleep, then you have that consciousness honed and you should be able to direct your dream. That's the idea behind that technique.

There's also - this one's less good - I've seen the idea that during REM sleep you should have stimulation, so some kind of light or sound or water that slightly wakes someone up but they're still in REM sleep, so it gives the dreamer awareness of their dream which can then be used to control that dream. But the interesting feature here is that it says do this during REM sleep - how do you know when somebody's in REM sleep?

Then snoozing after an alarm goes off is a common technique. The idea here is that you're asleep, you're woken up, and you fall back asleep. But since you have been woken up, you have some sort of consciousness which you again, take into that dream, to control a lucid dream. So you could try these techniques, I can't guarantee whether they will work or not.

Q. What time of night is best for sleep, or does this vary per person?

We know that there are huge differences in terms of our circadian rhythms. You may have heard of larks and owls: people who function really early in the day, and people who function really well late at night. Most of us are somewhere in between those two extremes. So our ideal timing should ideally fit around our body clock. But we know in reality that's often not possible. Because we know that we may have to be in an office at say, 8am for example, meaning that we have to get up at 7am or 6am, regardless of whether we want to. So there is a kind of balance between ideally working with our natural body clock, but also knowing we've got to function within the world around us.

And we know that there are genetic differences between us that help explain some of these differences in terms of sleep timing. We also know that sleep timing changes throughout the life course. So we see a meticulous, interesting shift in timing that

occurs in puberty. What's fascinating about this is that it occurs everywhere, all round the world. It occurs in certain other animals. So it seems to be this kind of natural change that people experience. And actually, I think there are studies trying to think what to do about this. Because at the moment, teenagers have to get up early in the morning to go to school at the same time as little kids, and older people as well, and is this fair if they're working out of sync with their natural rhythm? So for example teens stay up until late, and then they're getting up really early so they're missing out on sleep. Is that optimal for them to thrive at that stage of life?

Q. Can you share some ways to improve sleep quality?

What's really brilliant about this question is just as I received it, I received this in the post which is this project I've been working on called 'The Gift of Sleep'. It's a box with 50 tips about sleep. So it literally arrived in the post as soon as I saw this question. So I flipped through to see what I'd said in the past and put in some of the slides. So I've got 50 tips here and I have 10 top tips that I'll give you, that I've put in these cards, and I'll talk you through these quickly.

Keep to Clockwork

So if you do the same thing every day at the same time, our body begins to know what it should be doing and when. So consistency is really key. I know sometimes it's hard to fall asleep at a certain time, especially if you're experiencing insomnia for example, but if you make your wake up time consistent every day, then other things should slot into line. And I know that each one of these tips on their own may not work for everyone, but when you try and use some of these different tips then they may be useful. That's definitely a key tip.

Sleep Less

I don't mean sleep less as in if you're sleeping for four hours go down to two or something, what I mean is don't get more sleep than you need. Because we've all seen in

the media, in the news, everywhere, sleep's really important for you, so I think some people think 'Well I'm going to get twelve hours a night, and then I'll look great and be cleverer and everything'. So that's not a good idea, because once we stretch our sleep window - sleep is described as a sort of dough, and so if you stretch your dough, you get holes in it. And in the same way, if you stretch out your sleeping, you'll get these wakings. If you squash it together there are no holes anymore. If you squash your sleep window, you'll get a more consolidated sleep.

But of course the one caveat on that I'd say there, is as I said I'm not suggesting that any of you go from a reasonable amount of sleep to very short sleep, that wouldn't make sense. But make sure you're not getting more sleep than you need. Or sometimes with sleep at night go, 'Well ok, I'm going to try to sleep from 7pm to 7am every night.' That's going to be a problem because you're going to wake up repeatedly. If you squash it a little bit, then you'll sleep better.

Q. So how do you know how much sleep you need?

I would probably start by going to sleep guidelines. So the way they've been developed is: expert committees come together, and they will view all of the literature on sleep levels and different functioning, and they will come to conclusions that make sense in terms of health, wellbeing, performance and all those other things. So there are these guidelines, and I would start probably by thinking whether you could choose the number of hours in your sleep window, and limit those to start with. Then also think about how you feel the next day. If you wake up with your alarm clock, or you wake up feeling terrible, you're probably not getting enough sleep.

Unfortunately there's no one way, I don't know how much sleep you need obviously, it can depend on your age and lots of other things, I can only give you a rough starting point, and then you have to figure out what works for you. If you find yourself waking

up a lot, then think about if you're getting more than that recommendation, and can you get slightly less, to get a better night's sleep.

Incorporate Exercise

Exercise affects everything, in relation to sleep there's clear data there. And the mechanisms are multiple, especially if you're outside in the light, to help your body clock set. And it can help with things like stress, it can help with weight which can lead to sleep apnea for example, it's a really important point, which I know everyone will know.

Cap the Nightcap

I think many people after work maybe feel quite stressed and think 'Well I'll have a glass of wine and that will really help me fall asleep', but actually we know that it can affect your sleep architecture. We know it can lead to waking at night, we know it can make you snore and wake other people as well, we know you're more likely to wake up and go to the loo, so really I wouldn't - I mean I do - but I wouldn't! If you're really focusing on your sleep I wouldn't drink at night. If that's something that you really want to change, it's quite a good tip to avoid.

Soak in the Tub

It sounds a bit random, but actually there's science behind it. The idea is that our core body temperature needs to dip before we fall asleep at night, so when we heat up our body in the bath, our blood vessels open, our blood goes to the surface, it can cool us down. Our core body temperature dips, and that triggers a sign that it's time to go to sleep. There's good data there.

Abnormal is Normal

I think this is really important. I've been focusing on this area of sleep and health for so many years now, twenty three years, and what's clear is that some of these cut-offs are arbitrary. So if you want to think about something like insomnia, anxiety, depression,

actually we all have symptoms somewhere along the line, it's just when you reach a certain amount, when things get to a certain level of difficulty, then you may need some support. So if you're struggling to sleep at night, I think it's really important to keep in mind that we're all the same, we just have different levels of symptoms and difficulties in different areas.

Sleep Like a Polar Bear

The recommendation of what we need for sleep is usually between 16° and 19°. That's the recommended sleep temperature, which is actually colder than you might think. Then again there are individual differences, some people prefer a warmer environment to others who might like it freezing at night.

So the recommended temperature is lower than you'd expect for a good night's sleep, and that can be good, especially at the moment with the cost of heating, to think about whether (without going too low), you can sleep at a slightly lower temperature. And that may actually improve your sleep.

Darkness

Really important. We have constant light telling our bodies that it's time to be awake, and blocking melatonin, for example. So when we have darkness, we really have this ability to understand we should go to sleep if it's easy to do.

Cut Out Clock Watching

If you look at theories of insomnia, it's a really common thing that when you're struggling to sleep people look at their clock and go 'Right I've been awake for an hour, now two hours, now three hours...' and the fact is it doesn't help, it just hinders. Also going 'I've got to wake up in one hour, fifteen minutes...' Take the clock out of your bedroom. Because that's one of the big problems for insomnia. It really consolidates the problem. So you don't need it, it's not going to help.

And finally:

Rise Up

So if you've been in bed for fifteen minutes, thirty minutes, and you're still awake, go and do something else. Get out of bed. The idea here is that we do not want to link being in bed with being awake. Because once we've paired those things, that pair gets stronger and stronger. So if I'm going to bed I don't want to see it as a place where I'm awake and stressed from not being able to sleep. So just get up and do something else if you can.

And these questions I also received but I didn't have time to think through but I'm sure I've got something to say anyway. So:

Q. How are the effects of Covid in Long-Covid and lockdown affecting sleep?

So when the pandemic started, I was looking at a few different things on Covid and sleep, which I thought was highly original. Now I realise every scientist in the world was going 'Hang on I'll do something on Covid' (and whatever their topic of interest was.) But one of the things we wrote about to start with was lockdown and sleep. And one of the issues that came up, relates to something I just mentioned: adolescence being a time that we naturally go to bed quite late, and get up quite late. Of course, they have to not do that when they go to school. And I spoke to sleep clinicians who said they've worked with adolescents for years, managing to get their sleep schedule into a good pattern so they could go to school, and then of course, the structure went. So adolescents were shifting back in some cases to this natural sleep pattern. So that was one thing that people noticed. And they then had to false start again and bring the morning start time back. So I think that's been a real issue during Covid, as well as other things such as Covid insomnia, all kinds of different terms. I was contacted by quite a lot of journalists about dreams during Covid and these types of things. And certainly I think, the data does suggest that Covid can bring sleep difficulties, and there are other factors as well.

One of the studies we did at the beginning of the pandemic suggested that people might be getting better sleep. So that was not what we expected. I think the idea was that people stopped commuting, they had more control over their time. There's a huge, huge amount of literature, some of which is really poor quality, because people were not designing it carefully but just using whatever was available to them, which overall pointed to a mixed pattern there.

Q. Why do dreams feel so real?

Oh, that's interesting. So they do for some people, but they don't for others interestingly. So I wrote a piece a while back, on dream/wake confusion. And that was the idea that some people get very confused about whether their dream is something that actually happened to them. Based on the literature on it at the time, it seemed that only a small proportion of people experience this, perhaps 10% or less. But there are techniques you can use to look into this further - an obvious one is trying to get confirmation for this occurrence. So if you think you went swimming in Lake Constance with your friend in 1984 you could ask your friend 'Do you remember when we went to Lake Constance?' And if they say 'I've got no idea what you're talking about' you know it's likely this didn't really happen. But this is something that happens from time to time.

But some people don't feel that dreams are very real, and some people wake up and feel confused, and that's slightly more unusual.

Q. What causes insomnia?

So there are loads of different models of insomnia about, and currently one of the leading models is the 3P model, and it describes how you may have a vulnerability for insomnia. So we know for example, that family history is a common predictor for

insomnia. We also know that being female is more likely to mean you have experience of insomnia, or at least report insomnia. So there are certain sorts of vulnerability factors, but then there can be a trigger - something might happen such as an illness; a life event, and then we have to think about factors that contain insomnia once it starts. For example I spoke earlier about if insomnia isn't negatively affecting your life, maybe it isn't a problem then you being to feel better about it. But in terms of risk factors there are a huge number of them.

Q. And how to reverse it?

Another great question. So if you look at any statement from consensus groups of sleep experts around the world, they all seem to converge on the same thing, which is the most effective treatment for chronic insomnia is Cognitive Behavioural Therapy for insomnia. And this uses a variety of different techniques to think about your sleep, to think the way you relate to it. So for example, sleep windows, which we spoke about, are you getting more sleep than you need? Are you trying to get more sleep than you need? And other practices as well.

The good news about CBTI is that previously, it was hard to find a trained clinician that could help you with that. And now, scientist Colin Espie at Oxford developed a program called Sleepio, which is an online program. Because he had an increasing amount of patients with insomnia, and he'd also written a really popular book, he wondered how to disseminate this further. And so he developed this online program. And the NHS can now prescribe this, so that can make a difference to people who can't go and see them. It's been approved by NICE. So that's one way that people can really access this treatment, which hopefully will be helpful to many people.

Q. Just about problems with insomnia, sometimes when I go to bed I can't settle

Right

And it's interesting what you're saying about the idea that I should get up, because I kind of feel like I'm delaying the problem.

Yes, yep. Well it's just been one effective way to try and stop that link between the bed being a place that you feel really wound up. In fact what people often find who experience insomnia is when they go on holiday for example and they're in a different bed, or when they go to stay with a friend, or when they even go into hospital or something else, they're in a different environment, and suddenly that's no longer associated with this being awake. So they sleep really well. And actually that can sometimes be really frustrating if someone goes for a sleep study for example, and they describe having this experience every night for a very long time, and they go into the sleep lab and it's a different environment, and different associations, and they sleep like a log. And they end up saying 'I *have* had this problem for a long time, this is very difficult', But we're not surprised to see that, because of this difference in association. But yeah, that's one tip that is widely considered to be a good one.

And would you advise not getting up and starting eating? Having snacks?

Right right. It's interesting, I think most people think that the range of activities you can do is pretty wide actually. I think obviously an ideal recommendation would be for example, go into another room and practice mindfulness, or read a book, or something that doesn't make you feel wound up. But actually, I think as long as it's not something that really winds you up, it's ok to do what you want.

I went to a course - and just to add - I'm not a clinical psychologist - so I don't have patients and so all of my advice should be considered with that mind, but on this course on CBTI a real expert, a close colleague of mine, he was describing how a patient said 'I watched this movie', and he was like - go for it, you know. It's not ideal to have blue

light, but just get out of your bed and do something else and wait until you feel sleepy and go back. So that's the advice this colleague gave. Yeah. Thanks.

Q. Can you say anything about body positions? Because people sometimes say that there's certain body positions that benefit sleep? And some that don't?

Yeah, I don't think there's good evidence there. One of the things that I do is sometimes write for a science magazine about questions that the public send in, and I remember that was one of the questions actually, and so I did a bit of research. And I don't think there was any strong evidence. I think there was only lots of suggestion that there's real individual differences in how not to sleep.

Another study that I've been involved with is a study - do you know Claudia Hammond? The journalist? Who does a programme called 'All in the Mind' I think? And she contacted a colleague of mine to get involved in something on touch, a study about touch, and he contacted me and said 'Can we add a sleep component?' So we've been looking at sleep in relation to touch, and it's fascinating how little research there is. Because when you think about touch and sleep - if you think about the early stages of life, babies want to be held while they fall asleep. And often parents report back an issue where they say 'Well I want to put the baby in the cot and the baby sleeps fine in my arms, but every time I put the baby down it will cry.' But when you move through different stages of life, there's almost nothing on this, looking at any effects of even like a hug or a touch when someone's falling asleep and those types of things. So it's very interesting.

What is interesting as well is just the communal nature of sleep. So as sleep researchers we often look at individual sleep, so how do I sleep? But if you don't look at other family members' sleep you're going to get a very inaccurate picture of what's going on with me. And often now we think about how couples sleep. So it may be that couples align

with their sleep timing, it may be that one of them is snoring, all these different things can impact sleep. Interesting question, thank you.

Q. I heard that we need to eat more food before sleep?

Yes, there's really interesting literature on sleep and weight actually, which scientists have been trying to unravel. So when we miss out on sleep this effects our hormones ghrelin and leptin, and they make you feel really hungry or really full, so we have increased levels of ghrelin and decreased levels of leptin, increasing our appetite when we're missing out on sleep, so that's one factor for some people gaining weight, having short sleep. But we know as well that sleeping saves a few calories as I mentioned earlier, so that can be another factor. But also thinking about what people are doing when they're not sleeping. So often people may eat just as one of the activities they're doing in that waking time. So there is literature there. Thank you.

Q. Is there correlation between the quality and the type of food you have just before going to sleep?

It's interesting because there's lots of discussions there. So I remember one of my colleagues did a project on tart cherries, and that sounds rude! But actually there's something lovely about it, because tart cherries apparently contain melatonin. So if you're eating or drinking tart cherries before bed, then you're gaining some melatonin, and then you're more likely to fall asleep. But from doing a little diving into the literature myself, it seems to be that the effect of nutrition on sleep depends on the amount, the timing, what you're eating it with, you know, do we know that this tart cherry actually get melatonin into the system the way that we think it does? So there are lots of questions behind it.

I think when it comes to food, this might be a very boring answer, but what's clear is that with a healthy diet, it's key for wellbeing and body size and things that do impact

sleep, so that's interesting. And also thinking about alcohol, and caffeine too. Because some of the studies show that caffeine - even when you drink it in the morning, can actually impact our sleep at night. So if you're really struggling to sleep you might want to think about gradually removing caffeine from your diet slowly. Thank you.

Q. Am I right in thinking you've been doing some work for the Department of Education?

I have just put some guidelines in for sleep and school which they needed something for.

I was just interested in what that was about?

It was just because of Covid, related to a change they had in their PSHE guidelines, and they wanted sleep experts to create some kind of information to share in school. Both junior and secondary school.

Q. Can you have a lot of sleep and it not be restorative sleep? I'm specifically asking this because my doctor told me that my sleep is too deep. And so it's not restorative. And I don't dream.

Oh wow. So one of the things that's interesting there is that you don't remember your dreams, but many of us forget our dreams, but we are having those dreams during the night. People ask me about dream research, and one of the things that I say is that it's a really kind of messy area, because to know about the dream you have to wake people up and say 'What were you dreaming about? Tell us what were you dreaming? What were you dreaming?' So it's really hard to study scientifically. So surprisingly there can be a lot we don't know about the different stages, but one thing I would say, which might sound awful, is that GPs know very little about sleep.

It was a sleep doctor.

Oh it was a specialist? Oh ok, I absolutely take that back! So it was just that you were getting the wrong type of sleep?

He was just telling me that I probably should change my sleep and try a few different things. And after going through how I sleep he was like 'Just because you sleep for eight hours consistently every day, that doesn't mean you're sleeping well.' And I was quite confused because all my life I thought I was sleeping well.

And when you were talking about dreams in relation to association, it is interesting how during Covid, or if I'm on holiday, I do wake up and remember dreams, and then I know I have dreamt. But in my normal life I don't.

Yeah, it's interesting. And you may have heard of people talking about cheese giving you strange dreams. And in some of my lectures I mention we're more likely to wake up after we've had a heavy meal. More food that's harder to process. So if we wake up we're more likely to remember our dreams. So it might not be that cheese gives you strange dreams but just that we're more likely to wake up and remember.

Q. Looking at the other end of the spectrum from insomnia to excessive levels of sleep, is there any impact from that?

Good question actually. So we know, and it surprises some people, that when you look at the literature of both short and long sleep, they're both risk factors for other things. So long sleep as well as short sleep. And that surprises people because I think in the media you just hear about chronic under-sleep. You know, if you miss sleep then this that and the other will happen, but actually you know if you get long amounts of sleep, there are various associations as well. I think what we have to think about is first of all why? So is it for example that certain health conditions feed into that? What's the order and

direction of effects there? We also need to think about - what do we do about it? Does anyone actually say, if you're sleeping for twelve hours happily every night, and you don't feel groggy, would anyone recommend you get less? If you then feel tired? I don't know. I don't think they would. Obviously if you have insomnia and various other things you'll need more sleep, but yeah.

Ok. Say it was a state to do with depression or other psychological issues?

Right, and we do, yes. We know that insomnia is linked to depression for example, so both insomnia and hypersomnia. Yeah. Absolutely. And in fact it's a diagnostic criteria. It's one of many criteria for reporting depression in healthcare.

More? Or does everyone want to get on with their Saturday night? Oh yes!

Q. If you're using naps because you're feeling sleepy during the afternoon let's say, what's the recommended time for a nap? And what are the sleep stages involved? Let's say you take a continental nap that's twenty minutes or less, is it eighteen minutes REM, and two mins non-REM? I've never heard something like this before.

Yeah absolutely. The napping literature is very interesting. As I think it all is as you can tell! But I think naps are fascinating because certainly some people swear by them and they say they're really important, and the data has linked napping to positive outcomes. So performing better at work, there are loads of positive functions. In terms of how long we should nap, that's a very good question. Because the advice generally is around twenty/thirty minutes max. And that is exactly as you described, so you don't enter the deeper stages of sleep from which when we wake up we're terribly groggy and have that sleep inertia. However, I've read that you can have sleep inertia even after very short sleeps. Meaning that longer naps might be more problematic, but even short naps can be problematic in that respect. And another point I'd make about naps is we don't recommend them with something like insomnia, because that increases the likelihood

you won't be able to sleep at night time. So sleeping during the day - do you remember there's two processes I described? One was the homeostatic process: the longer that we're awake, the greater our drive to sleep. And now imagine you've had a sleep in the middle of the day, so by the time you get to the night time, your pressure to sleep, your need to sleep, is much lower. So you're starting with that. So ideally people with insomnia really should avoid daytime napping, because that can increase the problem for sleeping at night.

Are there any other sleep tips that work? I've recently been struggling.

Do you know, there are so many different things I could say that could make differences. From a scientist's point of view, I'm always saying CBTI, because that's what the evidence is. That's what the research says, so that's what the committees and public statements say. And that's for chronic insomnia, so something that's lasted three months or longer. I would say, I feel I'm going a bit off-piste here, that anecdotally we see lots of other techniques from people. So I'll give you an example: ASMR videos, with people doing strumming, and certain noises and certain...shaking foil, I don't know! Lots of communities online say 'This is really helpful for me, this really sends me to sleep at night.' However, from a scientific point of view, we know there's not enough data to say that. So it's hard to give that advice. But online, again, there are other techniques that are considered to be good. I think one of the useful tips is owning it. So if it's not impairing your life, and I know for some people it does, but if it's not impairing your life, is it necessarily a problem? Lots of those other techniques, the evidence just isn't quite there to support them. But you can find them, there are online communities that will literally say 'These sleep researchers are so silly, this is the key to sleeping'.

Anything else? Any final requests? I think not. Such a true pleasure to speak with you all and thanks to Leah, and Mariana, and to Julia, I really really enjoyed it.